

AD-A057 491

BOEING VERTOL CO PHILADELPHIA PA
LEVEL OF REPAIR (LOR) SUMMARY REPORT FOR THE 'AUTOMATED LIFE RA--ETC(U)
DEC 76 E W KING
D210-11156-1

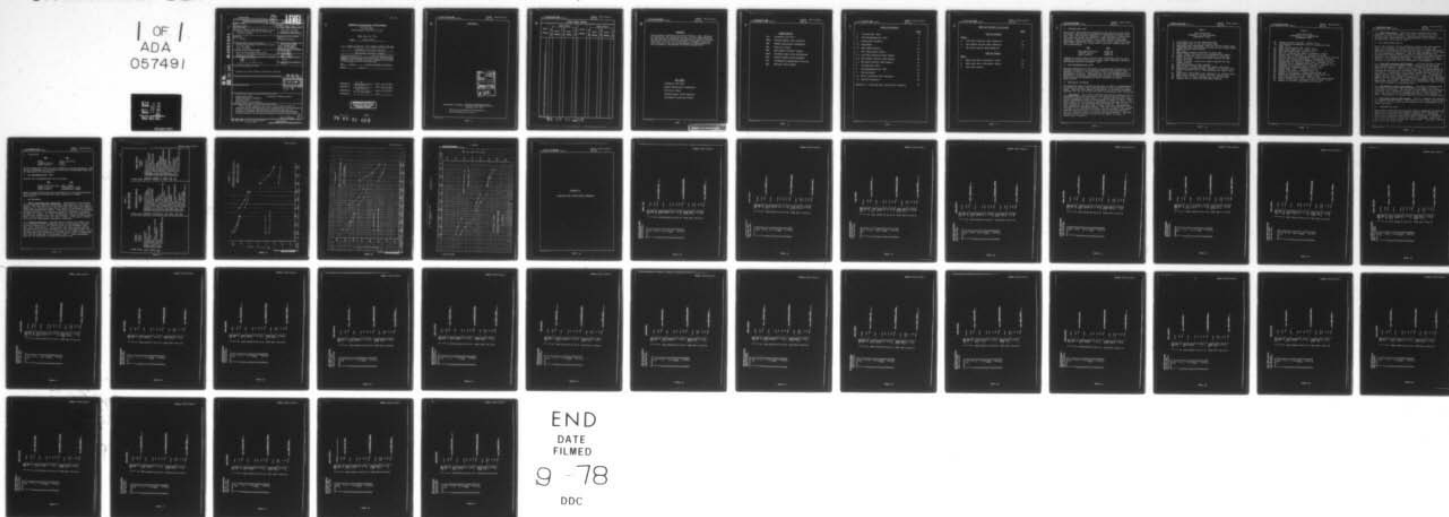
F/G 6/7

N62269-76-C-0341

NL

UNCLASSIFIED

1 OF 1
ADA
057491



UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

②

LEVEL II

REPORT DOCUMENTATION PAGE

1. REPORT NUMBER (14) D210-11156-1		2. GOVT ACCESSION NO. (9)		3. RECIPIENT'S CATALOG NUMBER Rept. no. 11 (Final), Jun-Dec 76,	
4. TITLE (and Subtitle) (6) Level of Repair (LOR) Summary Report for the Automated Life Raft and the Helicopter Flotation System.				5. TYPE OF REPORT & PERIOD COVERED Final ((11) of (14)) Jun 1976 - Dec 1976	
7. AUTHOR(s) (10) E. W./King				8. CONTRACT OR GRANT NUMBER(s) (15) N62269-76-C-0341	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Boeing Vertol Company, Survivability Section P. O. Box 16858 Phila., PA 19142				10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Prog. Element 63216N Proj. No. W0584001 Task Area N W4567001 WU No. DS-903 (Form DD1498)	
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Air Development Center (6033) Aircraft & Crew Systems Technology Directorate Warminster, PA 18974				12. REPORT DATE (11) 14 Dec 1976	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) (16) W0584 (17) W0584001				13. NUMBER OF PAGES (12) 45 P.	
				15. SECURITY CLASS. (of this report) UNCLAS	
				15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution unlimited					
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) DDC RECEIVED AUG 16 1978 B					
18. SUPPLEMENTARY NOTES					
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Automated Life Raft Helicopter Flotation System Weapon Replaceable Assemblies Work Unit Codes Optimum Repair Level Analysis					
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This document summarizes the level of repair (LOR) analysis by tabulating the LOR decisions for all the items analyzed for the externally mounted, automatically expelled/inflated multiplace life raft for helicopters, automated life raft (ALR) and the Sink Rate Delay/Improved In-Water stability for helicopters (Helicopter Flotation System) (HFS).					

403682

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

AD NO. AD A057491
DDC FILE COPY.

REV LTR

BOEING VERTOL COMPANY

A DIVISION OF THE BOEING COMPANY

P.O. BOX 16858
PHILADELPHIA, PENNSYLVANIA 19142

CODE IDENT. NO. 77272

NUMBER D210-11156-1

TITLE LEVEL OF REPAIR (LOR) SUMMARY REPORT FOR THE
"AUTOMATED LIFE RAFT" AND THE
"HELICOPTER FLOTATION SYSTEM"

ORIGINAL RELEASE DATE _____ . FOR THE RELEASE DATE OF
SUBSEQUENT REVISIONS, SEE THE REVISION SHEET. FOR LIMITATIONS
IMPOSED ON THE DISTRIBUTION AND USE OF INFORMATION CONTAINED
IN THIS DOCUMENT, SEE THE LIMITATIONS SHEET.

MODEL H-46 CONTRACT N62269-76-C-0341

ISSUE NO. _____ ISSUED TO: _____

PREPARED BY

E. W. King
E. W. King

DATE 12-3-76

APPROVED BY

E. G. Quinn
E. G. Quinn

DATE 12-13-76

APPROVED BY

G. W. Windolph
G. W. Windolph

DATE 12-14-76

APPROVED BY

DATE _____

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

78 07 31 03 8

LIMITATIONS

ACCESSION FOR	
NTIS	White Section <input checked="" type="checkbox"/>
DOC	Buff Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
BY	
DISTRIBUTION/AVAILABILITY CODES	
Dist. AVAIL. and/or SPECIAL	
A	23

This document is controlled by Product Assurance Group
Organization 7930

All revisions to this document shall be approved by the
above noted organization prior to release.

ACTIVE SHEET RECORD											
SHEET NUMBER	REV LTR	ADDED SHEETS				SHEET NUMBER	REV LTR	ADDED SHEETS			
		SHEET NUMBER	REV LTR	SHEET NUMBER	REV LTR			SHEET NUMBER	REV LTR	SHEET NUMBER	REV LTR
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

ABSTRACT

This document summarizes the Level of Repair (LOR) analysis by tabulating the LOR decisions for all the items analyzed for the externally mounted, automatically expelled/inflated multiplace lift raft for helicopters, Automated Life Raft (ALR) and the sink rate delay/improved in-water stability for helicopters (Helicopter Flotation System) (HFS).

KEY WORDS

Automated Life Raft
Weapon Replaceable Assemblies
Work Unit Codes
Optimum Repair Level Analysis
Helicopter Flotation System

ABBREVIATIONS

ALR	Automated Life Raft
ORLA	Optimum Repair Level Analysis
WRA	Weapon Replaceable Assemblies
WUC	Work Unit Codes
HFS	Helicopter Flotation System
SDLM	Standard Depot Level Maintenance
BCM	Beyond Capability Maintenance
IMA	Intermediate Maintenance Activity
NSN	National Stock Number

TABLE OF CONTENTS

	<u>Page</u>
1. Introduction (ALR)	9
2. LOR Recommendations (ALR)	9
3. Analytical Procedure	9
3.1 ORLA Model	9
3.2 ORLA Model Outputs	12
4. ALR Installation ORLA's	12
4.1 Life Raft Container ORLA Summary	12
4.2 ALR Cockpit Control ORLA Summary	12
4.3 ALR Cabin Control ORLA Summary	12
5. Introduction (HFS)	12
6. LOR Recommendations (HFS)	13
7. LOR Rationale	13
7.1 Float (Flotation Bag) Rationale	13
7.2 Controls Rationale	13
Appendix A - Detailed ORLA Input/Output Readouts	18

TABLE OF CONTENTS (Continued)PageLIST OF FIGURESFigure

1.	Life Raft Container ORLA Summaries	15
2.	ALR Cockpit Control ORLA Summaries	16
3.	ALR Cabin Control ORLA Summaries	17

LIST OF TABLESTable

1.	ORLA Input Data (Contractor Input)	10
2.	ORLA Input Data (Government Input)	11
3.	ORLA Cost Outputs	14

1. INTRODUCTION (ALR)

This report summarizes the methodology and results of the Level of Repair (LOR) analysis conducted on applicable Automatic Life Raft (ALR) installation components. The LOR model is described, and tabulated inputs and outputs of model manipulations are provided. Three significant units were analyzed; the Weapon Replaceable Assemblies (WRA's), along with their identifying Work Unit Codes (WUC's) are listed below. (item part numbers have yet to be established)

<u>WRA</u>	<u>WUC</u>
Life Raft Container	91181.00
Cockpit Control	91182.00
Cabin Control	91183.00

Components housed within the Life Raft Container were not considered during the LOR analyses since these components would be Government Furnished Equipment (GFE).

2. LOR RECOMMENDATIONS (ALR)

Multiple exercising of the model with significant variance of the driving variables of unit cost and removal rate indicate that decision to repair all three WRA's at the intermediate level of maintenance is valid. Substantiation for this recommendation is provided in subsequent paragraphs and justify the Maintainability Block Diagram and Mathematical Model contained in Report D210-11163-1.

3. ANALYTICAL PROCEDURE

The procedure used to establish the level of repair recommendations is called the Boeing Vertol Optimum Repair Level Analysis (ORLA) model. ORLA has been applied successfully on existing government programs and its use on the ALR study is considered cost effective.

3.1 ORLA Model. This model simulates the support scenario for an equipment life cycle and computes the relative support costs for three maintenance alternatives; i.e., discard upon failure, repair at the intermediate level of maintenance or repair at depot. The model inputs forty-one support parameters and computes 65 cost outputs relative to the three decision alternatives. The first 19 input parameters are described in Table 1 and are the parameters most affected by equipment design. The next 22 parameters, listed in Table 2, are semi-fixed variables and are primarily government supplied data describing life cycle, force size and structure, and cost constants currently applied by the government. The semi-fixed variables currently employed in the model are shown in parenthesis in Table 2.

TABLE 1

ORLA INPUT DATA
ELEMENTS 1-19 DESCRIPTIONS
CONTRACTOR INPUT

1. Procurement cost of one repairable WRA
2. Procurement cost of one discardable WRA
3. Repairable WRA replacement rate per million flight hours
4. Discardable WRA replacement rate per million flight hours
5. Number of WRA's per aircraft
6. BCM9 rate
7. Maintenance manhours required to repair WRA
8. Range (number) of parts to be provisioned for repair
9. Number of new part types to be placed in inventory
10. Number of maint. instruction pages required for WRA fault isolation
11. Number of maint. instruction pages required for WRA repair actions
12. Unpackaged weight of WRA (pounds)
13. Initial cost of PGSE required for repair (per site)
14. PGSE yearly maintenance cost (decimal % of initial cost)
15. Initial prorated cost of CGSE required for repair (per site)
16. CGSE yearly maintenance cost (decimal % of initial cost)
17. Bench floor space for repair activity (square feet)
18. Yearly cost to train personnel per repair activity
19. Average cost of parts per WRA repair action.

TABLE 2

ORLA INPUT DATA
ELEMENTS 20-41 DESCRIPTIONS
GOVERNMENT INPUT

- 20. Length of depot pipeline - months (6.0)
- 21. Intermediate maintenance activity turnaround time - days (20.0)
- 22. Order and shipping time - days (3.0)
- 23. Depot labor wage rate - \$/hour (12.87)
- 24. IMA labor wage rate - \$/hour (8.93)
- 25. Cost to introduce new part in inventory (206.23)
- 26. Yearly cost to keep part in inventory (375.68)
- 27. Average cost of originating one page of tech data (150.00)
- 28. Cost to introduce new assembly in inventory (233.09)
- 29. Yearly cost to keep new assembly in inventory (587.49)
- 30. Preparation for shipping labor rate - \$/pound (0.19)
- 31. Preparation for shipping material rate - \$/pound (0.10)
- 32. Shipping rate to/from depot - \$/pound (0.60)
- 33. Packaged to unpackaged weight ratio (1.30)
- 34. Supply admin. cost - \$/NSN/year (4.93)
- 35. System life cycle - calendar years (10)
- 36. Aircraft utilization - flight hours/month (69)
- 37. Number of intermediate maintenance activities (5)
- 38. Receiving charges for each order (12.00)
- 39. Cost of maintenance space - \$/square foot/year (10.00)
- 40. Yearly storage cost - decimal % of unit cost (0.20)
- 41. Number of aircraft supported per IMA (225)

3.2 ORLA Model Output. Using the input variables the model simulates a logistics support life cycle, and prints out cost elements relating to discard, intermediate and depot repair alternatives. Descriptions for the numerical line entries of the printed output are given in Table 3.

4. ALR INSTALLATION ORLA'S

Due to the fluidity of this conceptual study of the ALR installation, it was decided to conduct multiple ORLA's on each ALR component to ensure the validity of the level of repair decisions. Two of the major drivers of the ORLA are the variables of unit cost and the replacement frequency. Each of these parameters was significantly changed three times while holding all other variables constant. The resultant nine ORLA's for each component are summarized in the following paragraphs. The detail input and output readouts of each ORLA run are contained in the Appendix.

4.1 Life Raft Container ORLA Summary. Life Raft Container ORLA's were conducted at unit costs of \$300, \$600 and \$1200 with Mean Time Between Removals (MTBR's) of 400, 10,000 and 20,000 hours. Figure 1 is a chart of the relative merits of the repair decisions compared against the cost of discard (the most costly decisions in all cases). Intermediate level repairs ranged from 88% to 33% of discard costs, while depot ranged from 91% to 42%. Intermediate repair was most cost effective for all runs. However, at the high MTBR of 20,000 flight hours, intermediate and depot repair decisions were close. As the MTBR decreased, the intermediate level decision became more pronounced. The decision of intermediate repair of the life raft container is considered valid.

4.2 ALR Cockpit Control ORLA Summary. The ORLA's conducted used unit costs of \$50, \$100 and \$200 coupled with MTBR's of 1,000, 5,000 and 10,000 hours. The results of these ORLA's are portrayed in Figure 2 as a comparison against discard, the most costly concept. The validity of the intermediate repair level concept is easily recognized as it ranges from 78% to 33% of the discard cost.

4.3 ALR Cabin Control ORLA Summary. Figure 3 presents the results of the Cabin Control ORLA's. Unit Costs of \$75, \$150, \$300 and MTBR's of 1,000, 5,000 and 10,000 hours resulted in an Intermediate level repair decision.

5. INTRODUCTION (HFS)

This report summarizes the rationale used to establish the Level of Repair (LOR) for Helicopter Flotation System (HFS) components. As indicated in subsequent paragraphs, application of the Optimum Repair Level Analysis (ORLA) model was not required. Significant HFS Weapon Replaceable Assemblies (WRA's) addressed, along with their Work Unit Codes (WUC's) are listed below. (Item part numbers have yet to be established).

5. (Continued)

<u>WRA</u>	<u>WUC</u>
Float	91211 and 91221
Cockpit Control	91231
Cabin Control	91232

System components which will be Government Furnished Equipment (GFE) are not considered in this report since their maintenance shall be as directed by the Government.

6. LOR RECOMMENDATIONS (HFS)

Overall LOR recommendations are as follows:

<u>WRA</u>	<u>LOR</u>
Float (Flotation Bag)	Depot (NARF)
Cockpit Control	Intermediate (AIMD)
Cabin Control	Intermediate (AIMD)

These recommendations have been implemented in the Maintainability Block Diagram and Mathematical Model contained in Report D210-11163-1.

7. LOR RATIONALE

7.1 Float (Flotation Bag) Rationale. Requirements to be imposed on flotation bag suppliers negate the requirement for fleet level repair. The bags shall be so designed that they shall not require inspection or testing between the 24 month H-46 helicopter Standard Depot Level Maintenance (SDLM). When used as part of an H-46 water recovery operation, the bag shall either be discarded or shipped to depot for repair. No other maintenance, with the exception of pod security inspections, shall be required. Based on this concept, ORLA is not required since the repair level is dictated by design decisions and requirements imposed on suppliers.

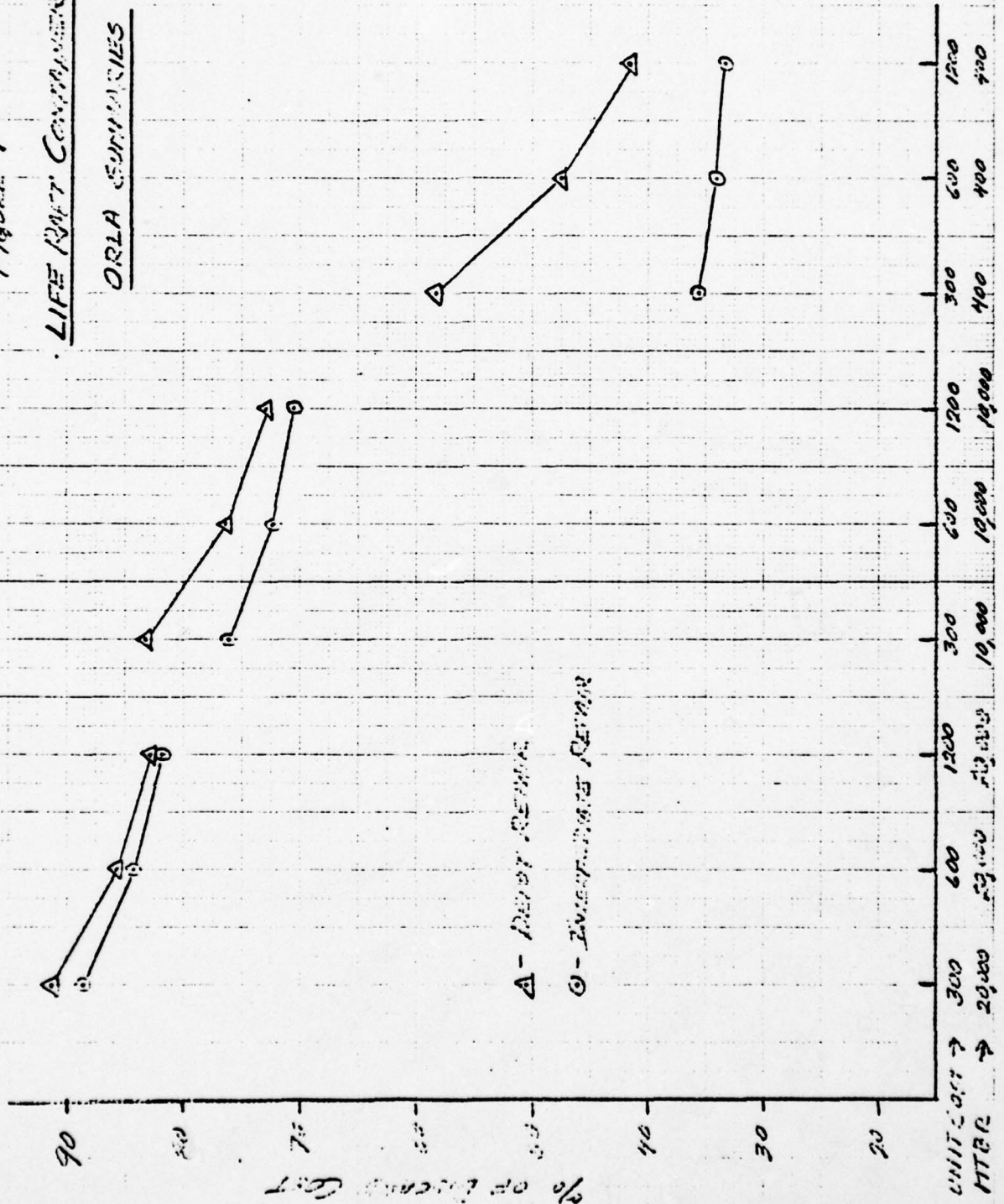
7.2 Controls Rationale. The decision to repair the cockpit and cabin controls at the intermediate level of maintenance is based on their similarity to the control units of the Automatic Life Raft (ALR) installation. In the event that both the ALR and HFS are installed in the H-46 helicopter, it is anticipated that the controls for both systems will be installed in common control units. The ORLA model was exercised on the ALR control units to determine their LOR as described in Paragraphs 3 and 4. These paragraphs describe the analytical procedure and model used.

TABLE 3

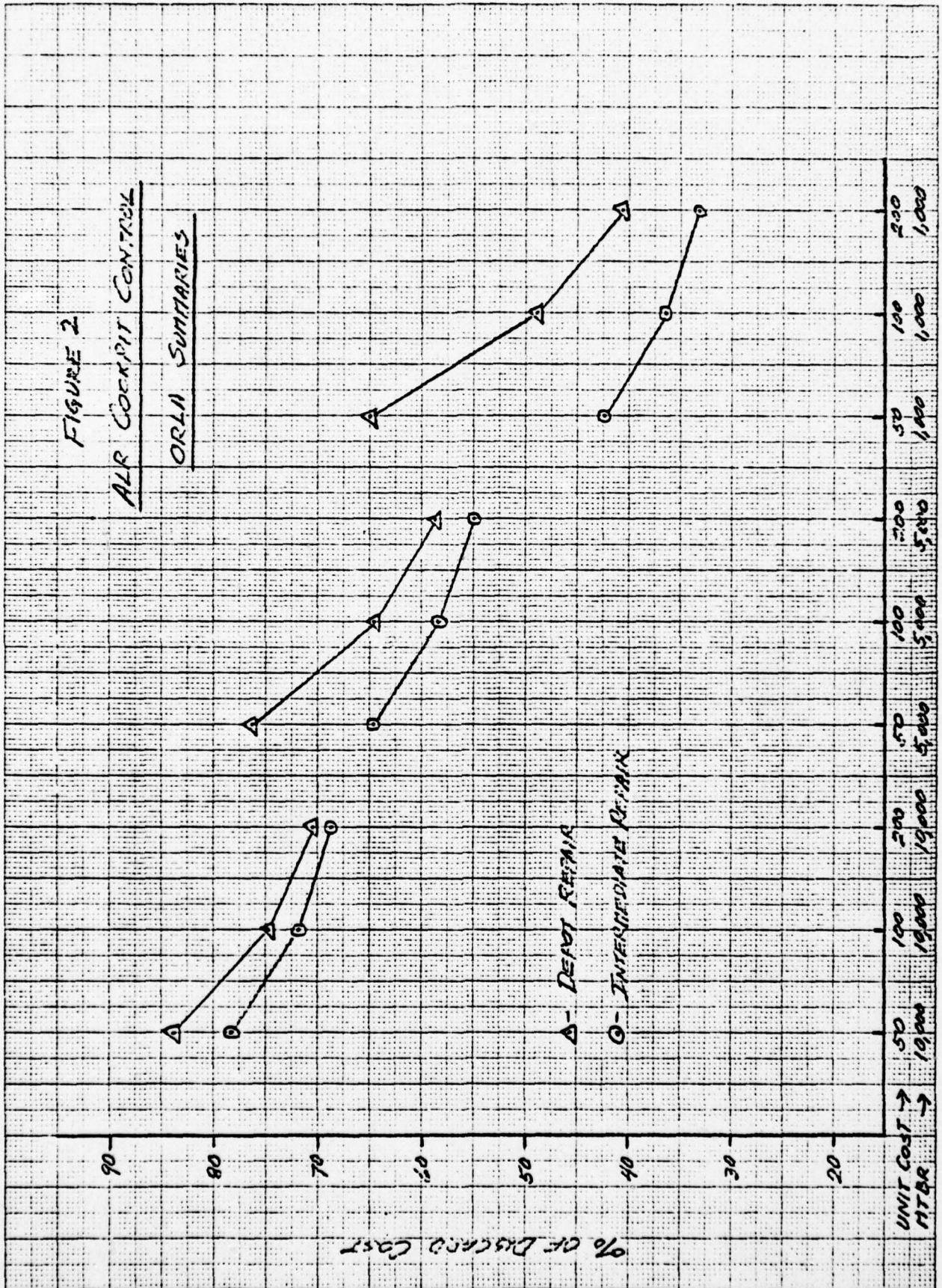
ORLA COST INPUTS

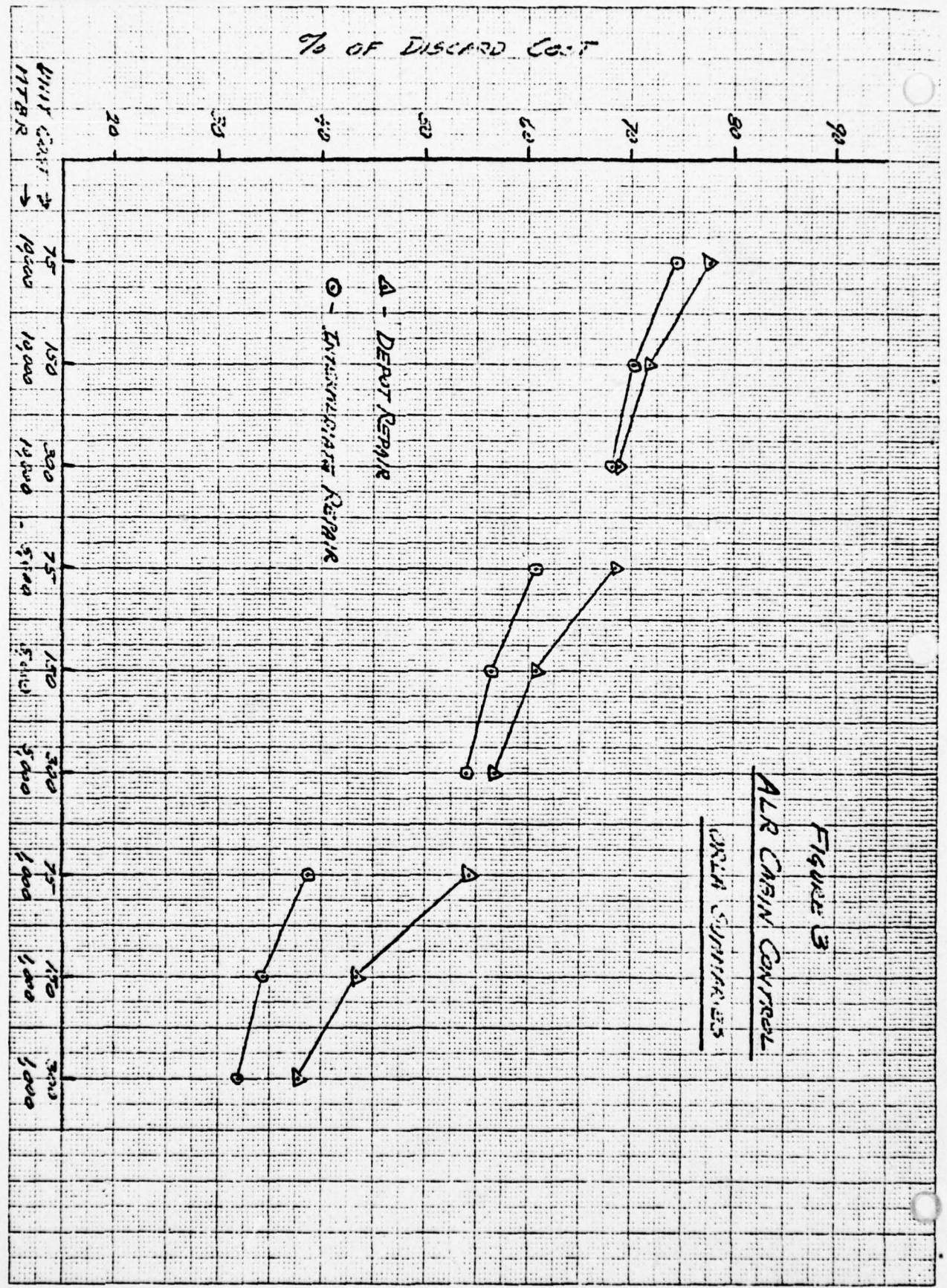
<u>DISCARD</u>		<u>INTERMEDIATE REPAIR</u>		<u>DEPOT REPAIR</u>	
ORLA Ident.	Concept Costs	ORLA Ident.	Concept Costs	ORLA Ident.	Concept Costs
1- Initial quantity		14- Initial quantity		42- Initial quantity	
2- Requisitioning		15- Requisitioning (WRA)		43- Requisitioning	
3- Replacement		16- Replacements (Condem.)		44- Replacements (Condem.)	
4- Total Procurement		17- Requisitioning (Parts)		45- Replenishment (Parts)	
5- New Assembly		18- Replenishment (Parts)		46- Depot Pipeline	
6- Storage		19- Total Procurement		47- Total Procurement	
7- Receiving		20- New Assembly		48- New Assembly	
8- Field Supply Administration		21- New Parts		49- New Parts	
9- Total Inventory		22- Storage (WRA)		50- Storage (WRA)	
10- Packing		23- Storage (Parts)		51- Receiving (WRA)	
11- Shipping		24- Receiving (WRA)		52- Total Inventory	
12- Total Transportation		25- Receiving (Parts)		53- Shipping Failures	
13- TOTAL DISCARD CONCEPT		26- Field Supply Administration		54- Total Transportation	
		27- Total Inventory		55- PGSE Procurement	
		28- Packing (WRA)		56- CGSE Procurement	
		29- Packing (Parts)		57- Floor Space	
		30- Total Transportation		58- Total Troubleshooting	
		31- PGSE Procurement		59- Trouble Manual	
		32- CGSE Procurement		60- CFE Manual	
		33- Floor Cost		61- Total Manuals	
		34- Total Troubleshooting		62- Direct Manhours	
		35- Trouble Manual		63- Personnel Training	
		36- CFE Manual		64- Total Personnel	
		37- Total Manuals		65- TOTAL DEPOT REPAIR	
		38- Direct Manhours			
		39- Personnel Training			
		40- Total Personnel			
		41- TOTAL BASE REPAIR			

FIGURE 1
LIFE RAFT COMPANIES
ORLA SUPPLIES



A - DAILY REPAIR
B - EMERGENCY REPAIR





EUGENE DIETZGEN CO.
MADE IN U. S. A.

NO. 340R-MP DIETZGEN GRAPH PAPER
MILLIMETER

APPENDIX A

DETAILED ORLA INPUT/OUTPUT READOUTS

LIFE RAFT CONTAINER
UNIT COST \$300
TTDR 29,000 HOURS

ORLA AT

ORLA INPUT DATA			
1	300.00	1	675000
2	300.00	2	4500
3	300.00	3	279000
4	300.00	4	958500
5	2.97	5	5321
6	2.97	6	9000
7	2.97	7	5380
8	2.97	8	247
9	15.00	9	20348
10	15.00	10	10318
11	12.00	11	21762
12	12.00	12	32280
13	12.00	13	101128
14	590.00	14	675000
15	.05	15	43048
16	.05	16	6000
17	.05	17	4500
18	.05	18	2250
19	16.00	19	758250
20	30.00	20	5321
21	30.00	21	43048
22	20.00	22	6000
23	3.00	23	4500
24	12.97	24	2250
25	30.93	25	9000
26	30.93	26	3744
27	12.00	27	74233
28	12.00	28	6421
29	20.00	29	1716
30	537.43	30	8157
31	.10	31	1750
32	.10	32	8000
33	.10	33	11750
34	1.33	34	300
35	4.33	35	2250
36	10.00	36	5350
37	69.00	37	8810
38	5.00	38	36000
39	12.00	39	42010
40	10.00	40	42010
41	225.00	41	42010
<u>INTERMEDIATE REMAIN</u>			
42	675000	42	675000
43	4500	43	4500
44	279000	44	279000
45	958500	45	958500
46	5321	46	17450
47	9000	47	771720
48	43048	48	5321
49	6000	49	43048
50	4500	50	1030
51	2250	51	11160
52	758250	52	63729
53	5321	53	64561
54	43048	54	64561
55	6000	55	750
56	4500	56	1600
57	2250	57	2350
58	9000	58	300
59	3744	59	2250
60	74233	60	2550
61	6421	61	9815
62	1716	62	7200
63	8157	63	17015
64	1750	64	17015
65	8000	65	17015
66	11750	66	17015
67	300	67	17015
68	2250	68	17015
69	5350	69	17015
70	8810	70	17015
71	36000	71	17015
72	42010	72	17015
73	42010	73	17015
74	42010	74	17015
75	42010	75	17015
76	42010	76	17015
77	42010	77	17015
78	42010	78	17015
79	42010	79	17015
80	42010	80	17015
81	42010	81	17015
82	42010	82	17015
83	42010	83	17015
84	42010	84	17015
85	42010	85	17015
86	42010	86	17015
87	42010	87	17015
88	42010	88	17015
89	42010	89	17015
90	42010	90	17015
91	42010	91	17015
92	42010	92	17015
93	42010	93	17015
94	42010	94	17015
95	42010	95	17015
96	42010	96	17015
97	42010	97	17015
98	42010	98	17015
99	42010	99	17015
100	42010	100	17015

LIFE RAFT CONTAINER
UNIT COST \$600
NTBR 29000 HOURS

ORLA OUTPUTS

ORLA INPUT DATA			
1	600.00	1	1350000
2	600.00	2	558000
3	600.00	3	558000
4	600.00	4	1917000
5	600.00	5	5521
6	600.00	6	18000
7	600.00	7	5580
8	600.00	8	267
9	600.00	9	29368
10	600.00	10	19218
11	600.00	11	21762
12	600.00	12	32280
13	600.00	13	1516500
14	600.00	14	5521
15	600.00	15	43068
16	600.00	16	12600
17	600.00	17	5000
18	600.00	18	2220
19	600.00	19	9000
20	600.00	20	1844
21	600.00	21	6421
22	600.00	22	1737
23	600.00	23	3750
24	600.00	24	8157
25	600.00	25	11750
26	600.00	26	2350
27	600.00	27	6810
28	600.00	28	35000
29	600.00	29	42810
30	600.00	30	1543660
31	600.00	31	63729
32	600.00	32	64561
33	600.00	33	750
34	600.00	34	1600
35	600.00	35	300
36	600.00	36	2250
37	600.00	37	9215
38	600.00	38	7200
39	600.00	39	17015
40	600.00	40	1695643
41	600.00	41	17015

191628 PUCANO COST

1666300 INTERMEDIATE REPAIR

1695643 DEFECT REPAIR

ORLA OUTPUTS

OPLA INPUT DATA		DISCARD COST		INTERMEDIATE REMAIN		DEBR REMAIN	
1	1200.00	1	2700000	1	3834000	1	3245083
2	1200.00	2	1116000	2		2	17015
3	1200.00	3	1116000	3		3	65
4	56.00	4	5521	4		4	
5	56.00	5	36600	5		5	
6	56.00	6	5550	6		6	
7	2.00	7	247	7		7	
8	1.00	8	10518	8	47348	8	
9	1.00	9	21762	9		9	
10	1.00	10	2700000	10	32280	10	
11	1.00	11	13000	11		11	
12	500.00	12	21762	12		12	
13	500.00	13	21762	13		13	
14	500.00	14	2700000	14		14	
15	500.00	15	13000	15		15	
16	500.00	16	90000	16		16	
17	16.00	17	5521	17	3033000	17	
18	726.00	18	43648	18		18	
19	1200.00	19	24000	19		19	
20	4.00	20	13000	20		20	
21	2.00	21	2720	21		21	
22	2.00	22	9000	22		22	
23	1.00	23	3544	23	105733	23	
24	1.00	24	6421	24		24	
25	20.00	25	1736	25	8157	25	
26	375.00	26	3750	26		26	
27	156.00	27	3750	27		27	
28	233.00	28	3750	28		28	
29	233.00	29	3750	29		29	
30	233.00	30	3750	30		30	
31	233.00	31	3750	31		31	
32	233.00	32	3750	32		32	
33	1.33	33	3000	33	11750	33	
34	4.00	34	300	34		34	
35	10.00	35	2250	35	2550	35	
36	6.00	36	6813	36		36	
37	5.00	37	10000	37		37	
38	10.00	38	10000	38	42810	38	
39	10.00	39	10000	39	41	39	
40	225.00	40	2700000	40		40	
41	225.00	41	6000	41		41	
42	43	42	22600	42		42	
43	43	43	8530	43		43	
44	43	44	69630	44		44	
45	43	45	5521	45	3086880	45	
46	43	46	43048	46		46	
47	43	47	12000	47		47	
48	43	48	11160	48		48	
49	43	49	64561	49	71729	49	
50	43	50	700	50	64561	50	
51	43	51	160058	51		51	
52	43	52	2250	52	2350	52	
53	43	53	2250	53	2550	53	
54	43	54	9815	54		54	
55	43	55	7200	55	17015	55	
56	43	56	7200	56	65	56	

LIFE RAFT CONTAINER
UNIT COST \$ 300
MTBR 19,000 HOURS

DATA INPUT DATA

1	330.00
2	300.00
3	170.00
4	100.00
5	2.00
6	1.00
7	12.00
8	12.00
9	12.00
10	12.00
11	12.00
12	12.00
13	12.00
14	12.00
15	12.00
16	12.00
17	12.00
18	12.00
19	12.00
20	12.00
21	12.00
22	12.00
23	12.00
24	12.00
25	12.00
26	12.00
27	12.00
28	12.00
29	12.00
30	12.00
31	12.00
32	12.00
33	12.00
34	12.00
35	12.00
36	12.00
37	12.00
38	12.00
39	12.00
40	12.00
41	12.00

DATA OUTPUTS

1	675000
2	6000
3	559500
4	1240500
5	5521
6	12000
7	7500
8	247
9	25268
10	21022
11	43641
12	64736
13	1139502
14	675000
15	6000
16	112500
17	2250
18	45000
19	840750
20	5521
21	12000
22	7500
23	4500
24	18000
25	5946
26	91313
27	13016
28	3471
29	3750
30	6000
31	11750
32	300
33	2250
34	2550
35	13657
36	36000
37	49657
38	675000
39	1560
40	112500
41	44760
42	31000
43	5521
44	43048
45	3000
46	22330
47	73949
48	129468
49	750
50	167058
51	2350
52	2250
53	2550
54	19682
55	7200
56	26882
57	1012707
58	1012707
59	1012707
60	1012707
61	1012707
62	1012707
63	1012707
64	1012707
65	1012707
66	1012707
67	1012707
68	1012707
69	1012707
70	1012707
71	1012707
72	1012707
73	1012707
74	1012707
75	1012707
76	1012707
77	1012707
78	1012707
79	1012707
80	1012707
81	1012707
82	1012707
83	1012707
84	1012707
85	1012707
86	1012707
87	1012707
88	1012707
89	1012707
90	1012707
91	1012707
92	1012707
93	1012707
94	1012707
95	1012707
96	1012707
97	1012707
98	1012707
99	1012707
100	1012707

1012707 INCREMENTAL REPAIR

1012707 REPAIR REPAIR

LIFE RENT CONTAINER
UNIT COST \$500
NTDR 10,000 HOURS

ORLA OUTPUTS

ORLA INPUT DATA					
1	1350000	1350000	1	1350000	1350000
2	12000	12000	2	12000	12000
3	1119000	1119000	3	1119000	1119000
4	2481000	2481000	4	2481000	2481000
5	5521	5521	5	5521	5521
6	2481	2481	6	2481	2481
7	7500	7500	7	7500	7500
8	2481	2481	8	2481	2481
9	37268	37268	9	37268	37268
10	21093	21093	10	21093	21093
11	43641	43641	11	43641	43641
12	44734	44734	12	44734	44734
13	1350000	1350000	13	1350000	1350000
14	12000	12000	14	12000	12000
15	1119000	1119000	15	1119000	1119000
16	2481000	2481000	16	2481000	2481000
17	5521	5521	17	5521	5521
18	2481	2481	18	2481	2481
19	7500	7500	19	7500	7500
20	2481	2481	20	2481	2481
21	37268	37268	21	37268	37268
22	21093	21093	22	21093	21093
23	43641	43641	23	43641	43641
24	44734	44734	24	44734	44734
25	1350000	1350000	25	1350000	1350000
26	12000	12000	26	12000	12000
27	1119000	1119000	27	1119000	1119000
28	2481000	2481000	28	2481000	2481000
29	5521	5521	29	5521	5521
30	2481	2481	30	2481	2481
31	7500	7500	31	7500	7500
32	2481	2481	32	2481	2481
33	37268	37268	33	37268	37268
34	21093	21093	34	21093	21093
35	43641	43641	35	43641	43641
36	44734	44734	36	44734	44734
37	1350000	1350000	37	1350000	1350000
38	12000	12000	38	12000	12000
39	1119000	1119000	39	1119000	1119000
40	2481000	2481000	40	2481000	2481000
41	5521	5521	41	5521	5521
42	2481	2481	42	2481	2481
43	7500	7500	43	7500	7500
44	2481	2481	44	2481	2481
45	37268	37268	45	37268	37268
46	21093	21093	46	21093	21093
47	43641	43641	47	43641	43641
48	44734	44734	48	44734	44734
49	1350000	1350000	49	1350000	1350000
50	12000	12000	50	12000	12000
51	1119000	1119000	51	1119000	1119000
52	2481000	2481000	52	2481000	2481000
53	5521	5521	53	5521	5521
54	2481	2481	54	2481	2481
55	7500	7500	55	7500	7500
56	2481	2481	56	2481	2481
57	37268	37268	57	37268	37268
58	21093	21093	58	21093	21093
59	43641	43641	59	43641	43641
60	44734	44734	60	44734	44734
61	1350000	1350000	61	1350000	1350000
62	12000	12000	62	12000	12000
63	1119000	1119000	63	1119000	1119000
64	2481000	2481000	64	2481000	2481000
65	5521	5521	65	5521	5521
66	2481	2481	66	2481	2481
67	7500	7500	67	7500	7500
68	2481	2481	68	2481	2481
69	37268	37268	69	37268	37268
70	21093	21093	70	21093	21093
71	43641	43641	71	43641	43641
72	44734	44734	72	44734	44734
73	1350000	1350000	73	1350000	1350000
74	12000	12000	74	12000	12000
75	1119000	1119000	75	1119000	1119000
76	2481000	2481000	76	2481000	2481000
77	5521	5521	77	5521	5521
78	2481	2481	78	2481	2481
79	7500	7500	79	7500	7500
80	2481	2481	80	2481	2481
81	37268	37268	81	37268	37268
82	21093	21093	82	21093	21093
83	43641	43641	83	43641	43641
84	44734	44734	84	44734	44734
85	1350000	1350000	85	1350000	1350000
86	12000	12000	86	12000	12000
87	1119000	1119000	87	1119000	1119000
88	2481000	2481000	88	2481000	2481000
89	5521	5521	89	5521	5521
90	2481	2481	90	2481	2481
91	7500	7500	91	7500	7500
92	2481	2481	92	2481	2481
93	37268	37268	93	37268	37268
94	21093	21093	94	21093	21093
95	43641	43641	95	43641	43641
96	44734	44734	96	44734	44734
97	1350000	1350000	97	1350000	1350000
98	12000	12000	98	12000	12000
99	1119000	1119000	99	1119000	1119000
100	2481000	2481000	100	2481000	2481000

1869937 Intermediate Repair

1011119 Direct Repair

LIFE RAFT CONTINUED
Unit Cost \$1200
HTBR 19,000 Hours

ORLA OUTPUTS

<u>ORLA INPUT DATA</u>	
1	120.00
2	120.00
3	120.00
4	120.00
5	120.00
6	120.00
7	120.00
8	120.00
9	120.00
10	120.00
11	120.00
12	120.00
13	120.00
14	120.00
15	120.00
16	120.00
17	120.00
18	120.00
19	120.00
20	120.00
21	120.00
22	120.00
23	120.00
24	120.00
25	120.00
26	120.00
27	120.00
28	120.00
29	120.00
30	120.00
31	120.00
32	120.00
33	120.00
34	120.00
35	120.00
36	120.00
37	120.00
38	120.00
39	120.00
40	120.00
41	120.00

2300000	4	4962000	
24000			
25000			
26000			
27000			
28000			
29000			
30000			
31000			
32000			
33000			
34000			
35000			
36000			
37000			
38000			
39000			
40000			
41000			
42000			
43000			
44000			
45000			
46000			
47000			
48000			
49000			
50000			
51000			
52000			
53000			
54000			
55000			
56000			
57000			
58000			
59000			
60000			
61000			
62000			
63000			
64000			
65000			
66000			
67000			
68000			
69000			
70000			
71000			
72000			
73000			
74000			
75000			
76000			
77000			
78000			
79000			
80000			
81000			
82000			
83000			
84000			
85000			
86000			
87000			
88000			
89000			
90000			
91000			
92000			
93000			
94000			
95000			
96000			
97000			
98000			
99000			
100000			

5033002 DUCMS COST

3384457 INTERMEDIATE REPAIR

2111332 DETAIL REPAIR

LIFE RAFT CONTAINER
UNIT COST \$300
NTBR 400 MOVES

CELLA INPUT DATA

[illegible]

QSLA OUTPUTS

DISCARD COST		SUPERHEATING PENALTY	
1	675000	42	675000
2	133500	43	18900
3	13972500	44	2794500
5	5521	45	1118900
6	267000	46	723000
7	7260	47	5521
8	247	48	43048
10	526763	49	506000
11	1082335	50	550000
12	1616618	51	3233237
14	675000	52	730
15	675000	53	1600
16	2758000	54	300
17	18000	55	2250
18	1118250	56	491525
19	4636750	57	723064
20	5521	58	98725
21	43048	59	63
22	1626000	60	
23	36000	61	
24	111700	62	
25	74700	63	
26	3944	64	
28	323324	65	
29	56154	66	
30	3750	67	
31	3750	68	
32	9000	69	
33	14	70	
35	399	71	
36	2250	72	
37	2550	73	
38	341050	74	
39	36000	75	
40	377050	76	
41	5924671	77	
42	675000	78	
43	18900	79	
44	2794500	80	
45	1118900	81	
46	723000	82	
47	5521	83	
48	43048	84	
49	506000	85	
50	550000	86	
51	3233237	87	
52	730	88	
53	1600	89	
54	300	90	
55	2250	91	
56	491525	92	
57	723064	93	
58	98725	94	
59	63	95	
60		96	
61		97	
62		98	
63		99	
64		100	

ALR Cockpit Control
Unit Cost \$200
MTBR 10,000 Hours

ORLA Outputs

OFLA INPUT DATA			
1	200.00	1	225000
2	200.00	2	3000
3	200.00	3	186000
4	100.00	4	414000
5	100.00	5	5521
6	100.00	6	6000
7	100.00	7	5530
8	100.00	8	247
9	100.00	9	17348
10	100.00	10	175
11	100.00	11	363
12	100.00	12	539
13	100.00	13	11
14	100.00	14	221000
15	100.00	15	1700
16	100.00	16	15000
17	100.00	17	1000
18	100.00	18	16500
19	100.00	19	264500
20	100.00	20	5521
21	100.00	21	6000
22	100.00	22	5530
23	100.00	23	247
24	100.00	24	17348
25	100.00	25	175
26	100.00	26	363
27	100.00	27	539
28	100.00	28	11
29	100.00	29	221000
30	100.00	30	1700
31	100.00	31	15000
32	100.00	32	1000
33	100.00	33	16500
34	100.00	34	264500
35	100.00	35	5521
36	100.00	36	6000
37	100.00	37	5530
38	100.00	38	247
39	100.00	39	17348
40	100.00	40	175
41	100.00	41	363
42	100.00	42	539
43	100.00	43	11
44	100.00	44	221000
45	100.00	45	1700
46	100.00	46	15000
47	100.00	47	1000
48	100.00	48	16500
49	100.00	49	264500
50	100.00	50	5521
51	100.00	51	6000
52	100.00	52	5530
53	100.00	53	247
54	100.00	54	17348
55	100.00	55	175
56	100.00	56	363
57	100.00	57	539
58	100.00	58	11
59	100.00	59	221000
60	100.00	60	1700
61	100.00	61	15000
62	100.00	62	1000
63	100.00	63	16500
64	100.00	64	264500
65	100.00	65	5521
66	100.00	66	6000
67	100.00	67	5530
68	100.00	68	247
69	100.00	69	17348
70	100.00	70	175
71	100.00	71	363
72	100.00	72	539
73	100.00	73	11
74	100.00	74	221000
75	100.00	75	1700
76	100.00	76	15000
77	100.00	77	1000
78	100.00	78	16500
79	100.00	79	264500
80	100.00	80	5521
81	100.00	81	6000
82	100.00	82	5530
83	100.00	83	247
84	100.00	84	17348
85	100.00	85	175
86	100.00	86	363
87	100.00	87	539
88	100.00	88	11
89	100.00	89	221000
90	100.00	90	1700
91	100.00	91	15000
92	100.00	92	1000
93	100.00	93	16500
94	100.00	94	264500
95	100.00	95	5521
96	100.00	96	6000
97	100.00	97	5530
98	100.00	98	247
99	100.00	99	17348
100	100.00	100	175

411836 Discard Cost

224906 Intermediate Returns

203330 Defect Returns

ALR Cockpit Control
Unit Cost 50
MTBR 5000 HOURS

ORLA INPUT DATA

1	50.00
2	50.00
3	200.00
4	200.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
24	1.00
25	1.00
26	1.00
27	1.00
28	1.00
29	1.00
30	1.00
31	1.00
32	1.00
33	1.00
34	1.00
35	1.00
36	1.00
37	1.00
38	1.00
39	1.00
40	1.00
41	1.00

ORLA OUTPUTS

1	56350	150750	150750
2	11350		
3	93350		
4	5321		
5	2300		
6	5640		
7	247		
8	13908		
9	352		
10	727		
11	12		
12	1079		
13	13		
14	56350		
15	1700		
16	9250		
17	625		
18	8375		
19	75500		
20	5221		
21	3887		
22	2800		
23	1220		
24	3600		
25	1479		
26	19957		
27	107		
28	194		
29	301		
30	750		
31	2000		
32	350		
33	650		
34	37		
35	7578		
36	40		
37	7578		
38	41		
39	56210		
40	9250		
41	8375		
42	5500		
43	5321		
44	3587		
45	500		
46	22330		
47	31988		
48	2158		
49	54		
50	150		
51	400		
52	300		
53	600		
54	10921		
55	64		
56	10921		
57	63		
58	64		
59	10921		
60	63		
61	64		
62	10921		
63	63		
64	64		
65	10921		
66	63		
67	64		
68	10921		
69	63		
70	64		
71	10921		
72	63		
73	64		
74	10921		
75	63		
76	64		
77	10921		
78	63		
79	64		
80	10921		
81	63		
82	64		
83	10921		
84	63		
85	64		
86	10921		
87	63		
88	64		
89	10921		
90	63		
91	64		
92	10921		
93	63		
94	64		
95	10921		
96	63		
97	64		
98	10921		
99	63		
100	64		

104286 INTERMEDIATE REPAIR

116160 DETENT REPAIR

ALR Cockpit Control
Unit Cost \$ 200
MTBR 5000 Hours

CELA outputs

<u>CELA INPUT DATA</u>		<u>Discard Cost</u>	
1	200.00	1	1079
2	200.00	2	13
3	200.00	3	1079
4	200.00	4	13
5	200.00	5	1079
6	200.00	6	13
7	200.00	7	1079
8	200.00	8	13
9	200.00	9	1079
10	200.00	10	13
11	200.00	11	1079
12	200.00	12	13
13	200.00	13	1079
14	200.00	14	13
15	200.00	15	1079
16	200.00	16	13
17	200.00	17	1079
18	200.00	18	13
19	200.00	19	1079
20	200.00	20	13
21	200.00	21	1079
22	200.00	22	13
23	200.00	23	1079
24	200.00	24	13
25	200.00	25	1079
26	200.00	26	13
27	200.00	27	1079
28	200.00	28	13
29	200.00	29	1079
30	200.00	30	13
31	200.00	31	1079
32	200.00	32	13
33	200.00	33	1079
34	200.00	34	13
35	200.00	35	1079
36	200.00	36	13
37	200.00	37	1079
38	200.00	38	13
39	200.00	39	1079
40	200.00	40	13
41	200.00	41	1079
42	200.00	42	13
43	200.00	43	1079
44	200.00	44	13
45	200.00	45	1079
46	200.00	46	13
47	200.00	47	1079
48	200.00	48	13
49	200.00	49	1079
50	200.00	50	13
51	200.00	51	1079
52	200.00	52	13
53	200.00	53	1079
54	200.00	54	13
55	200.00	55	1079
56	200.00	56	13
57	200.00	57	1079
58	200.00	58	13
59	200.00	59	1079
60	200.00	60	13
61	200.00	61	1079
62	200.00	62	13
63	200.00	63	1079
64	200.00	64	13
65	200.00	65	1079
66	200.00	66	13
67	200.00	67	1079
68	200.00	68	13
69	200.00	69	1079
70	200.00	70	13
71	200.00	71	1079
72	200.00	72	13
73	200.00	73	1079
74	200.00	74	13
75	200.00	75	1079
76	200.00	76	13
77	200.00	77	1079
78	200.00	78	13
79	200.00	79	1079
80	200.00	80	13
81	200.00	81	1079
82	200.00	82	13
83	200.00	83	1079
84	200.00	84	13
85	200.00	85	1079
86	200.00	86	13
87	200.00	87	1079
88	200.00	88	13
89	200.00	89	1079
90	200.00	90	13
91	200.00	91	1079
92	200.00	92	13
93	200.00	93	1079
94	200.00	94	13
95	200.00	95	1079
96	200.00	96	13
97	200.00	97	1079
98	200.00	98	13
99	200.00	99	1079
100	200.00	100	13
101	200.00	101	1079
102	200.00	102	13
103	200.00	103	1079
104	200.00	104	13
105	200.00	105	1079
106	200.00	106	13
107	200.00	107	1079
108	200.00	108	13
109	200.00	109	1079
110	200.00	110	13
111	200.00	111	1079
112	200.00	112	13
113	200.00	113	1079
114	200.00	114	13
115	200.00	115	1079
116	200.00	116	13
117	200.00	117	1079
118	200.00	118	13
119	200.00	119	1079
120	200.00	120	13
121	200.00	121	1079
122	200.00	122	13
123	200.00	123	1079
124	200.00	124	13
125	200.00	125	1079
126	200.00	126	13
127	200.00	127	1079
128	200.00	128	13
129	200.00	129	1079
130	200.00	130	13
131	200.00	131	1079
132	200.00	132	13
133	200.00	133	1079
134	200.00	134	13
135	200.00	135	1079
136	200.00	136	13
137	200.00	137	1079
138	200.00	138	13
139	200.00	139	1079
140	200.00	140	13
141	200.00	141	1079
142	200.00	142	13
143	200.00	143	1079
144	200.00	144	13
145	200.00	145	1079
146	200.00	146	13
147	200.00	147	1079
148	200.00	148	13
149	200.00	149	1079
150	200.00	150	13
151	200.00	151	1079
152	200.00	152	13
153	200.00	153	1079
154	200.00	154	13
155	200.00	155	1079
156	200.00	156	13
157	200.00	157	1079
158	200.00	158	13
159	200.00	159	1079
160	200.00	160	13
161	200.00	161	1079
162	200.00	162	13
163	200.00	163	1079
164	200.00	164	13
165	200.00	165	1079
166	200.00	166	13
167	200.00	167	1079
168	200.00	168	13
169	200.00	169	1079
170	200.00	170	13
171	200.00	171	1079
172	200.00	172	13
173	200.00	173	1079
174	200.00	174	13
175	200.00	175	1079
176	200.00	176	13
177	200.00	177	1079
178	200.00	178	13
179	200.00	179	1079
180	200.00	180	13
181	200.00	181	1079
182	200.00	182	13
183	200.00	183	1079
184	200.00	184	13
185	200.00	185	1079
186	200.00	186	13
187	200.00	187	1079
188	200.00	188	13
189	200.00	189	1079
190	200.00	190	13
191	200.00	191	1079
192	200.00	192	13
193	200.00	193	1079
194	200.00	194	13
195	200.00	195	1079
196	200.00	196	13
197	200.00	197	1079
198	200.00	198	13
199	200.00	199	1079
200	200.00	200	13
201	200.00	201	1079
202	200.00	202	13
203	200.00	203	1079
204	200.00	204	13
205	200.00	205	1079
206	200.00	206	13
207	200.00	207	1079
208	200.00	208	13
209	200.00	209	1079
210	200.00	210	13
211	200.00	211	1079
212	200.00	212	13
213	200.00	213	1079
214	200.00	214	13
215	200.00	215	1079
216	200.00	216	13
217	200.00	217	1079
218	200.00	218	13
219	200.00	219	1079
220	200.00	220	13
221	200.00	221	1079
222	200.00	222	13
223	200.00	223	1079
224	200.00	224	13
225	200.00	225	1079
226	200.00	226	13
227	200.00	227	1079
228	200.00	228	13
229	200.00	229	1079
230	200.00	230	13
231	200.00	231	1079
232	200.00	232	13
233	200.00	233	1079
234	200.00	234	13
235	200.00	235	1079
236	200.00	236	13
237	200.00	237	1079
238	200.00	238	13
239	200.00	239	1079
240	200.00	240	13
241	200.00	241	1079
242	200.00	242	13
243	200.00	243	1079
244	200.00	244	13
245	200.00	245	1079
246	200.00	246	13
247	200.00	247	1079
248	200.00	248	13
249	200.00	249	1079
250	200.00	250	13
251	200.00	251	1079
252	200.00	252	13
253	200.00	253	1079
254	200.00	254	13
255	200.00	255	1079
256	200.00	256	13
257	200.00	257	1079
258	200.00	258	13
259	200.00	259	1079
260	200.00	260	13
261	200.00	261	1079
262	200.00	262	13
263	200.00	263	1079
264	200.00	264	13
265	200.00	265	1079
266	200.00	266	13
267	200.00	267	1079
268	200.00	268	13
269	200.00	269	1079
270	200.00	270	13
271	200.00	271	1079
272	200.00	272	13
273	200.00	273	1079
274	200.00	274	13
275	200.00	275	1079
276	200.00	276	13
277	200.00	277	1079
278	200.00	278	13
279	200.00	279	1079
280	200.00	280	13
281	200.00	281	1079
282	200.00	282	13
283	200.00	283	1079
284	200.00	284	13
285	200.00	285	1079
286	200.00	286	13
287	200.00	287	1079
288	200.00	288	13
289	200.00	289	1079
290	200.00	290	13
291	200.00	291	1079
292	200.00	292	13
293	200.00	293	1079
294	200.00	294	13
295	200.00	295	1079
296	200.00	296	13
297	200.00	297	1079
298	200.00	298	13
299	200.00	299	1079
300	200.00	300	13
301	200.00	301	

ALR COCKPIT CONTROL
UNIT COST \$50 -
RTOR 1000 HOURS

ORLA INPUT DATA

1	30.20
2	10.67
3	100.00
4	1000.00
5	1.50
6	.10
7	.20
8	5.00
9	2.00
10	2.00
11	4.00
12	.50
13	100.00
14	.55
15	.03
16	.70
17	4.00
18	.20
19	2.00
20	2.00
21	20.00
22	12.00
23	12.00
24	2.00
25	276.23
26	325.63
27	150.00
28	233.09
29	527.49
30	.19
31	.10
32	.50
33	1.35
34	4.00
35	10.00
36	6.00
37	5.00
38	12.00
39	10.00
40	10.20
41	225.00

DATA OUTPUTS

1	56250	
2	4750	
3	465750	4
5	5521	
6	9500	
7	7370	
8	287	9
10	1756	
11	3633	12
13	5309	13
14	56250	
15	3750	
16	46500	
17	1500	
18	41875	19
20	5521	
21	3200	
22	3000	
23	11160	
24	9000	
25	1477	27
26	523	
29	904	10
31	750	
32	2000	34
33	330	
35	600	37
38	37848	
39		40
41	37848	41
42	56250	
43	1000	
44	46500	
45	41918	
46	25150	47
48	5521	
49	3537	
50	2000	
51	111780	
52	10777	54
53	10777	
54	150	
55	400	58
56	300	
59	600	61
60	900	
62	34547	64
63		
64	34547	65
65		

DISCARD COSTS

INTERMEDIATE REMAINS

DISCARD REMAINS

ALL COCREDIT CONTROL
UNIT COST \$/100
HTOR 1000 HOURS

ORLA OUTPUT

ORLA INPUT DATA			
1	100.00	1	112500
2	100.00	2	931500
3	100.00	3	1033500
4	100.00	4	
5	100.00	5	5321
6	100.00	6	10000
7	100.00	7	7500
8	100.00	8	247
9	100.00	9	32268
10	100.00	10	1256
11	100.00	11	3633
12	100.00	12	5389
13	100.00	13	
14	100.00	14	112500
15	100.00	15	7500
16	100.00	16	93000
17	100.00	17	2500
18	100.00	18	83750
19	100.00	19	299000
20	100.00	20	5321
21	100.00	21	1587
22	100.00	22	15000
23	100.00	23	4500
24	100.00	24	11160
25	100.00	25	12000
26	100.00	26	1679
27	100.00	27	53847
28	100.00	28	328
29	100.00	29	947
30	100.00	30	1507
31	100.00	31	750
32	100.00	32	2000
33	100.00	33	2750
34	100.00	34	900
35	100.00	35	37848
36	100.00	36	
37	100.00	37	
38	100.00	38	
39	100.00	39	
40	100.00	40	37848
41	100.00	41	
42	100.00	42	112500
43	100.00	43	2000
44	100.00	44	93000
45	100.00	45	63835
46	100.00	46	50300
47	100.00	47	341635
48	100.00	48	5321
49	100.00	49	10000
50	100.00	50	7500
51	100.00	51	111780
52	100.00	52	124888
53	100.00	53	10777
54	100.00	54	10777
55	100.00	55	150
56	100.00	56	450
57	100.00	57	500
58	100.00	58	200
59	100.00	59	600
60	100.00	60	900
61	100.00	61	
62	100.00	62	54567
63	100.00	63	
64	100.00	64	54567
65	100.00	65	

1051557 Purchase Cost

1051551 INTERMEDIATE RETAIN

511207 Depot Repair

ALR Cockpit Control
Unit Cost \$200
MYBR 1000 Hours

ORLA Outputs

ORLA INPUT DATA			
1	225000	1	225000
2	190000	2	190000
3	1063000	3	1063000
4	2107000	4	2107000
5	5521	5	5521
6	38000	6	38000
7	7500	7	7500
8	247	8	247
9	51268	9	51268
10	1756	10	1756
11	3633	11	3633
12	5389	12	5389
13	5389	13	5389
14	225000	14	225000
15	190000	15	190000
16	1063000	16	1063000
17	2107000	17	2107000
18	5521	18	5521
19	38000	19	38000
20	7500	20	7500
21	247	21	247
22	51268	22	51268
23	1756	23	1756
24	3633	24	3633
25	5389	25	5389
26	5389	26	5389
27	225000	27	225000
28	190000	28	190000
29	1063000	29	1063000
30	2107000	30	2107000
31	5521	31	5521
32	38000	32	38000
33	7500	33	7500
34	247	34	247
35	51268	35	51268
36	1756	36	1756
37	3633	37	3633
38	5389	38	5389
39	5389	39	5389
40	225000	40	225000
41	190000	41	190000
42	1063000	42	1063000
43	2107000	43	2107000
44	5521	44	5521
45	38000	45	38000
46	7500	46	7500
47	247	47	247
48	51268	48	51268
49	1756	49	1756
50	3633	50	3633
51	5389	51	5389
52	5389	52	5389
53	225000	53	225000
54	190000	54	190000
55	1063000	55	1063000
56	2107000	56	2107000
57	5521	57	5521
58	38000	58	38000
59	7500	59	7500
60	247	60	247
61	51268	61	51268
62	1756	62	1756
63	3633	63	3633
64	5389	64	5389
65	5389	65	5389
66	225000	66	225000
67	190000	67	190000
68	1063000	68	1063000
69	2107000	69	2107000
70	5521	70	5521
71	38000	71	38000
72	7500	72	7500
73	247	73	247
74	51268	74	51268
75	1756	75	1756
76	3633	76	3633
77	5389	77	5389
78	5389	78	5389
79	225000	79	225000
80	190000	80	190000
81	1063000	81	1063000
82	2107000	82	2107000
83	5521	83	5521
84	38000	84	38000
85	7500	85	7500
86	247	86	247
87	51268	87	51268
88	1756	88	1756
89	3633	89	3633
90	5389	90	5389
91	5389	91	5389
92	225000	92	225000
93	190000	93	190000
94	1063000	94	1063000
95	2107000	95	2107000
96	5521	96	5521
97	38000	97	38000
98	7500	98	7500
99	247	99	247
100	51268	100	51268
101	1756	101	1756
102	3633	102	3633
103	5389	103	5389
104	5389	104	5389
105	225000	105	225000
106	190000	106	190000
107	1063000	107	1063000
108	2107000	108	2107000
109	5521	109	5521
110	38000	110	38000
111	7500	111	7500
112	247	112	247
113	51268	113	51268
114	1756	114	1756
115	3633	115	3633
116	5389	116	5389
117	5389	117	5389
118	225000	118	225000
119	190000	119	190000
120	1063000	120	1063000
121	2107000	121	2107000
122	5521	122	5521
123	38000	123	38000
124	7500	124	7500
125	247	125	247
126	51268	126	51268
127	1756	127	1756
128	3633	128	3633
129	5389	129	5389
130	5389	130	5389
131	225000	131	225000
132	190000	132	190000
133	1063000	133	1063000
134	2107000	134	2107000
135	5521	135	5521
136	38000	136	38000
137	7500	137	7500
138	247	138	247
139	51268	139	51268
140	1756	140	1756
141	3633	141	3633
142	5389	142	5389
143	5389	143	5389
144	225000	144	225000
145	190000	145	190000
146	1063000	146	1063000
147	2107000	147	2107000
148	5521	148	5521
149	38000	149	38000
150	7500	150	7500
151	247	151	247
152	51268	152	51268
153	1756	153	1756
154	3633	154	3633
155	5389	155	5389
156	5389	156	5389
157	225000	157	225000
158	190000	158	190000
159	1063000	159	1063000
160	2107000	160	2107000
161	5521	161	5521
162	38000	162	38000
163	7500	163	7500
164	247	164	247
165	51268	165	51268
166	1756	166	1756
167	3633	167	3633
168	5389	168	5389
169	5389	169	5389
170	225000	170	225000
171	190000	171	190000
172	1063000	172	1063000
173	2107000	173	2107000
174	5521	174	5521
175	38000	175	38000
176	7500	176	7500
177	247	177	247
178	51268	178	51268
179	1756	179	1756
180	3633	180	3633
181	5389	181	5389
182	5389	182	5389
183	225000	183	225000
184	190000	184	190000
185	1063000	185	1063000
186	2107000	186	2107000
187	5521	187	5521
188	38000	188	38000
189	7500	189	7500
190	247	190	247
191	51268	191	51268
192	1756	192	1756
193	3633	193	3633
194	5389	194	5389
195	5389	195	5389
196	225000	196	225000
197	190000	197	190000
198	1063000	198	1063000
199	2107000	199	2107000
200	5521	200	5521

ALR CARIN CONTROL
UNIT COST \$75
MTAR 14,000 HOURS

QELA INPUT DATA

1	25.00
2	25.00
3	25.00
4	100.00
5	100.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
24	1.00
25	1.00
26	1.00
27	1.00
28	1.00
29	1.00
30	1.00
31	1.00
32	1.00
33	1.00
34	1.00
35	1.00
36	1.00
37	1.00
38	1.00
39	1.00
40	1.00
41	1.00

QELA OUTPUTS

1	84375	
2	3125	
3	69750	4
4	155250	
5	5521	9
6	2250	
7	5580	
8	247	
9	13598	
10	175	
11	363	
12	538	13
13	169186	<u>Discard Cost</u>
14	84375	
15	3125	
16	7125	
17	1725	
18	6300	19
19	5521	
20	3567	
21	2250	
22	1350	
23	1140	
24	1240	
25	1726	27
26	18814	
27	55	
28	3130	
29	750	136
30	2000	
31	306	34
32	600	
33	3779	37
34	900	
35	3779	40
36	3779	41
37	102503	
38	5221	
39	3597	
40	11160	
41	1076	52
42	1076	54
43	150	
44	400	58
45	300	
46	600	61
47	5446	
48	5446	64
49	5446	65
50	5446	
51	5446	
52	5446	
53	5446	
54	5446	
55	5446	
56	5446	
57	5446	
58	5446	
59	5446	
60	5446	
61	5446	
62	5446	
63	5446	
64	5446	
65	5446	

135379 Intermediate Repair

131493 Direct Repair

ALR CABIN CONTROL

UNIT COST \$150
MTBR 10,000 HOURS

ORLA INPUT DATA

1	150.00
2	150.00
3	100.00
4	100.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
24	1.00
25	1.00
26	1.00
27	1.00
28	1.00
29	1.00
30	1.00
31	1.00
32	1.00
33	1.00
34	1.00
35	1.00
36	1.00
37	1.00
38	1.00
39	1.00
40	1.00
41	1.00
42	1.00
43	1.00
44	1.00
45	1.00
46	1.00
47	1.00
48	1.00
49	1.00
50	1.00
51	1.00
52	1.00
53	1.00
54	1.00
55	1.00
56	1.00
57	1.00
58	1.00
59	1.00
60	1.00
61	1.00
62	1.00
63	1.00
64	1.00
65	1.00
66	1.00
67	1.00
68	1.00
69	1.00
70	1.00
71	1.00
72	1.00
73	1.00
74	1.00
75	1.00
76	1.00
77	1.00
78	1.00
79	1.00
80	1.00
81	1.00
82	1.00
83	1.00
84	1.00
85	1.00
86	1.00
87	1.00
88	1.00
89	1.00
90	1.00
91	1.00
92	1.00
93	1.00
94	1.00
95	1.00
96	1.00
97	1.00
98	1.00
99	1.00
100	1.00

ORLA OUTPUTS

1	168750	
2	13250	
3	139500	4
4	310500	
5	5521	
6	4250	
7	5580	
8	247	9
9	15848	
10	175	
11	363	12
12	538	13
13	13	
14	168750	
15	17250	
16	14250	
17	12600	19
18	198750	
19	5521	
20	3587	
21	4500	
22	1800	
23	1140	
24	5640	
25	17250	27
26	55	
27	31	
28	136	
29	750	30
30	3000	34
31	300	
32	600	
33	900	
34	3779	37
35	3779	
36	40	
37	3779	41
38	168750	
39	750	
40	14250	
41	12335	
42	5700	47
43	5521	
44	4250	
45	5580	
46	11160	52
47	1076	
48	150	54
49	400	
50	350	
51	400	58
52	350	
53	900	61
54	5446	64
55	5446	65
56	274743	
57	274743	
58	274743	
59	274743	
60	274743	
61	274743	
62	274743	
63	274743	
64	274743	
65	274743	
66	274743	
67	274743	
68	274743	
69	274743	
70	274743	
71	274743	
72	274743	
73	274743	
74	274743	
75	274743	
76	274743	
77	274743	
78	274743	
79	274743	
80	274743	
81	274743	
82	274743	
83	274743	
84	274743	
85	274743	
86	274743	
87	274743	
88	274743	
89	274743	
90	274743	
91	274743	
92	274743	
93	274743	
94	274743	
95	274743	
96	274743	
97	274743	
98	274743	
99	274743	
100	274743	

INTERMEDIATE RESULTS

PERIODIC RESULTS

ALR CABIN CONTROL
UNIT COST \$ 25
MTOR 5000 HOURS
A CBA UNIT IN

1	12.00
2	75.00
3	200.00
4	200.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	1.00
12	1.00
13	1.00
14	1.00
15	1.00
16	1.00
17	1.00
18	1.00
19	1.00
20	1.00
21	1.00
22	1.00
23	1.00
24	1.00
25	1.00
26	1.00
27	1.00
28	1.00
29	1.00
30	1.00
31	1.00
32	1.00
33	1.00
34	1.00
35	1.00
36	1.00
37	1.00
38	1.00
39	1.00
40	1.00
41	1.00

DATA OUTPUTS

1	84375				
2	1500				
3	139875	4	225750		
5	5221				
6	5006				
7	7208				
8	247	9	16268		
10	352				
11	727	12	1079	13	
14	84375				
15	1500				
16	13875				
17	12700				
18	12700	19	113250		
20	5221				
21	5006				
22	7208				
23	1800				
24	2220				
25	5040				
26	1726	27	22894		
28	102				
29	162	30	269		
31	750				
32	2000	34	2750		
35	300				
36	600	37	900		
38	7570				
39	40				
40	7578	41			
42	84375				
43	1500				
44	13875				
45	12566				
46	8250	47	119464		
48	5521				
49	3587				
50	750				
51	22330	52	32238		
53	2158	54	2158		
55	150				
56	400	58	150		
59	300				
60	600	61	900		
62	10921				
63	64				
64	10921	65			

Discard Cost

INTERMEDIATE REPAIR

DEPOT REPAIR

ALR CABIN CONTROL
UNIT COST \$ 150
MTBR 5000 HOURS

QBLA INPUT DATA

1	150.00
2	150.00
3	150.00
4	200.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
11	2.00
12	4.00
13	100.00
14	1.00
15	1.00
16	1.00
17	4.00
18	4.00
19	15.00
20	1.00
21	20.00
22	3.00
23	12.00
24	8.00
25	200.00
26	100.00
27	100.00
28	100.00
29	100.00
30	100.00
31	1.00
32	1.00
33	1.00
34	1.00
35	10.00
36	10.00
37	5.00
38	12.00
39	10.00
40	10.00
41	225.00

1	168750
2	3000
3	279750
4	431500
5	5521
6	6000
7	7579
8	247
9	19268
10	312
11	717
12	1079
13	1079
14	168750
15	3000
16	279750
17	1370
18	25200
19	5521
20	6000
21	7579
22	2220
23	2220
24	6649
25	1776
26	28594
27	107
28	162
29	750
30	269
31	750
32	2000
33	34
34	2750
35	360
36	800
37	900
38	7578
39	40
40	7578
41	246141
42	168750
43	3000
44	279750
45	25177
46	16500
47	238927
48	5521
49	3587
50	1500
51	22386
52	32988
53	2150
54	2158
55	100
56	400
57	300
58	600
59	900
60	10921
61	64
62	10921
63	10921
64	10921
65	10921

411847 Discard Cost

246141 Insurance We Report

246141 Discard Report

ALR CABIN CONTROL

UNIT COST \$ 300

MTBR 5000 HOURS

ORLA OUTLAYS

ORLA INPUT DATA					
1	300.00	1	337500	1	1079
2	300.00	2	6000	2	13
3	300.00	3	59500	3	
4	200.00	4		4	903000
5	200.00	5	5521	5	
6	200.00	6	12000	6	
7	1.00	7	7500	7	
8	1.00	8	247	8	25263
9	1.00	9		9	
10	1.00	10	352	10	
11	1.00	11	727	11	
12	1.00	12		12	
13	1.00	13	337500	13	
14	1.00	14	6000	14	
15	1.00	15	55500	15	
16	1.00	16	1800	16	
17	1.00	17	1800	17	
18	1.00	18	59400	18	
19	1.00	19		19	431200
20	1.00	20	5221	20	
21	1.00	21	12000	21	
22	1.00	22	3000	22	
23	1.00	23	3000	23	
24	1.00	24	2220	24	
25	1.00	25	10030	25	
26	1.00	26	1726	26	
27	1.00	27		27	38734
28	1.00	28	107	28	
29	1.00	29	162	29	
30	1.00	30	750	30	269
31	1.00	31		31	
32	1.00	32	2000	32	
33	1.00	33	300	33	2750
34	1.00	34	600	34	
35	1.00	35		35	900
36	1.00	36	7578	36	
37	1.00	37		37	
38	1.00	38		38	
39	1.00	39		39	
40	1.00	40		40	
41	1.00	41		41	
42	1.00	42	337500	42	7578
43	1.00	43	1500	43	41
44	1.00	44	55500	44	
45	1.00	45	50355	45	
46	1.00	46	33000	46	
47	1.00	47		47	477855
48	1.00	48	5221	48	
49	1.00	49	3527	49	
50	1.00	50	3000	50	
51	1.00	51	22330	51	
52	1.00	52		52	34400
53	1.00	53	2158	53	
54	1.00	54		54	2158
55	1.00	55	150	55	
56	1.00	56		56	
57	1.00	57	400	57	530
58	1.00	58	300	58	
59	1.00	59	600	59	900
60	1.00	60		60	
61	1.00	61	10921	61	
62	1.00	62		62	
63	1.00	63		63	
64	1.00	64		64	10921
65	1.00	65		65	
66	1.00	66		66	
67	1.00	67		67	
68	1.00	68		68	
69	1.00	69		69	
70	1.00	70		70	
71	1.00	71		71	
72	1.00	72		72	
73	1.00	73		73	
74	1.00	74		74	
75	1.00	75		75	
76	1.00	76		76	
77	1.00	77		77	
78	1.00	78		78	
79	1.00	79		79	
80	1.00	80		80	
81	1.00	81		81	
82	1.00	82		82	
83	1.00	83		83	
84	1.00	84		84	
85	1.00	85		85	
86	1.00	86		86	
87	1.00	87		87	
88	1.00	88		88	
89	1.00	89		89	
90	1.00	90		90	
91	1.00	91		91	
92	1.00	92		92	
93	1.00	93		93	
94	1.00	94		94	
95	1.00	95		95	
96	1.00	96		96	
97	1.00	97		97	
98	1.00	98		98	
99	1.00	99		99	
100	1.00	100		100	

22247 DISCARD COST

501431 INTERMEDIATE REPAIR

516372 DEPT REPAIR

ALR CABIN CONTROL
UNIT COST \$150
NTDR 1000 HOURS

ORLA OUTPUTS

ORLA INPUT DATA		ORLA OUTPUTS	
1	150.00	1	163750
2	150.00	2	14250
3	150.00	3	1397250
4	1000.00	4	1580210
5	1.00	5	5521
6	1.00	6	28500
7	1.00	7	7500
8	1.00	8	247
9	50	9	41768
10	6.00	10	1736
11	1.00	11	3633
12	2.00	12	5389
13	4.00	13	1622407
14	100.00	14	168750
15	50	15	11250
16	50	16	134500
17	50	17	3150
18	50	18	125550
19	4.00	19	448200
20	15.00	20	5521
21	6.00	21	1587
22	20.00	22	22500
23	1.00	23	1370
24	1.00	24	1650
25	12.87	25	1726
26	3.93	26	67714
27	200.21	27	538
28	315.68	28	807
29	315.00	29	750
30	567.42	30	2000
31	1.00	31	300
32	1.00	32	600
33	1.00	33	900
34	1.00	34	37248
35	10.00	35	40
36	69.00	36	148750
37	5.00	37	3000
38	12.00	38	13500
39	10.00	39	13723
40	225.00	40	13723
41		41	13723
42		42	13723
43		43	13723
44		44	13723
45		45	13723
46		46	13723
47		47	13723
48		48	13723
49		49	13723
50		50	13723
51		51	13723
52		52	13723
53		53	13723
54		54	13723
55		55	13723
56		56	13723
57		57	13723
58		58	13723
59		59	13723
60		60	13723
61		61	13723
62		62	13723
63		63	13723
64		64	13723
65		65	13723
66		66	13723
67		67	13723
68		68	13723
69		69	13723
70		70	13723
71		71	13723
72		72	13723
73		73	13723
74		74	13723
75		75	13723
76		76	13723
77		77	13723
78		78	13723
79		79	13723
80		80	13723
81		81	13723
82		82	13723
83		83	13723
84		84	13723
85		85	13723
86		86	13723
87		87	13723
88		88	13723
89		89	13723
90		90	13723
91		91	13723
92		92	13723
93		93	13723
94		94	13723
95		95	13723
96		96	13723
97		97	13723
98		98	13723
99		99	13723
100		100	13723

359131 Intermediate Repair

109113 Depot Repair

ALR CABIN CONTROL
UNIT COST \$300
110R 1000 HOURS

CRLA OUTPUTS

CRLA INPUT DATA			
1	300.00	1	337500
2	300.00	2	28500
3	1000.00	3	2798500
4	1.00	4	3160500
5	1.00	5	5521
6	1.00	6	5000
7	1.00	7	247
8	1.00	8	70268
9	1.00	9	5389
10	1.00	10	1256
11	1.00	11	1633
12	1.00	12	13
13	100.00	13	337500
14	50	14	22500
15	50	15	279000
16	50	16	4500
17	50	17	251100
18	50	18	894600
19	50	19	5521
20	50	20	5521
21	50	21	3537
22	50	22	45600
23	50	23	9000
24	50	24	11160
25	50	25	25200
26	50	26	1726
27	50	27	101194
28	50	28	518
29	50	29	807
30	50	30	1345
31	50	31	750
32	50	32	2070
33	50	33	300
34	50	34	670
35	50	35	37848
36	50	36	900
37	50	37	37848
38	50	38	40
39	50	39	37848
40	50	40	41
41	50	41	1018637
42	50	42	337500
43	50	43	4000
44	50	44	279000
45	50	45	251505
46	50	46	150300
47	50	47	1024905
48	50	48	5521
49	50	49	3537
50	50	50	12000
51	50	51	111750
52	50	52	132800
53	50	53	10777
54	50	54	10777
55	50	55	150
56	50	56	400
57	50	57	300
58	50	58	600
59	50	59	900
60	50	60	54547
61	50	61	64
62	50	62	54547
63	50	63	65
64	50	64	1224567
65	50	65	1024567